

REMARKS

Claims 1-9, and 12-20 stand rejected under 35 USC 102(b) as being anticipated by Miller (USP 4,003,273). The rejected claims define a method for producing a Ravigneaux gear set. The '273 patent neither discloses a method for producing a Ravigneaux gear set, nor discloses a method for producing any gearset.

The steps recited in claims 1 and 12 of determining an error representing a difference in phases of a tooth on a selected gear or pinion into a mesh cycle is entirely absent from the '273 patent. "Phases of a gear tooth", and "gear tooth error" are not disclosed or alluded to in the '273 patent. The Office action refers to a "slip loss" as an error that needs to be fixed. But the "slip loss" in the torque converter or fluid coupling to which the Office action specifically refers is not an error in gear or pinion phase, as claims 1 and 12 recite. A torque converter is a hydrokinetic device, which incurs slip between its impeller and turbine during startup when the torque converter is producing a speed reduction and the torque application. The claims refer to an error in the phases of the teeth on a gear or pinion.

The '273 patent discloses and teaches nothing with respect to repetitively changing one or more current gear parameters to determine a set of optimal gear parameters for which the error is in a range between zero and the magnitude of single pair backlash of the gearset. The '273 patent discloses nothing about phase error, gear set parameters, backlash, or producing a gearset having optimal gearset parameters. Yet each claim of this subject application includes reference to these elements and limitations.

With respect to the method steps set forth in claims 3-9 and 13-20, the '273 patent teaches nothing with respect to those steps. The Office action points out no similarity between the disclosure of the '273 patent and these claims. The claims should not be rejected under 35 USC 102(b) because the '273 reference does not anticipate each element and limitation of the rejected claims.

Claims 10, 11, 21, and 22 stand rejected under 35 USC 103(a) as being unpatentable over Miller, presumably the '273 patent. The Office action also cites a patent of Miller USP 2,923,178, which we assume is not the subject of this rejection.

The Office action states that it would have been an obvious matter of design choice to have used four long pinions and four short pinions or five long pinions and five short pinions located in accordance with the optimal gearset parameters in a carrier that rotates about the short sun gear. In support of this rejection, the Office action states that applicant has not disclosed that four long pinions and four short pinions or five long pinions and five short pinions provide an advantage.

Notice, please, that the present application discusses at page 2, lines 15-22 the advantageous increase in power and torque capacity of a gear set produced by the method defined by the claims. Further, the present application discusses, in the paragraph that begins at page 2, line 22, the advantage of a 62.5 percent reduction in load at the long pinion-to-ring gear mesh point and a resultant smaller package. Also, the present application states, in the paragraph that begins at page 3, line 3, that the present invention has been demonstrated to increase torque capacity and enable a wider gear ratio in a gear set produced by the method of the claims. A major difficulty overcome by the production method defines by the claims of the present application is discussed in the paragraph that begins at page 8, line 8. The method defined by the claims permits the gearset shown in Figures 3 and 4 to be assembled and overcomes problems discussed in the paragraph at page 8, line 8.

To the best of applicant's knowledge and belief no four pinion or five pinion gear set is in current production because the problems discussed in this application had not been solved heretofore. From this it can be seen that it is not a simple matter of design choice to add additional short and long pinions, which are in mesh with a sun gear and concurrently mesh with two other pinions. The method defined by the claims of this application has solved the problems associated with producing a gear set of that type.

In view of the foregoing remarks, claims 1-20 are patentably distinguished over the prior art and in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,



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